



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/874,044	06/06/2001	Graham Kirsch	M4065.0433/P433	7612

24998 7590 04/14/2004

DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP  
2101 L STREET NW  
WASHINGTON, DC 20037-1526

EXAMINER

MAI, TAN V

ART UNIT	PAPER NUMBER
----------	--------------

2124

DATE MAILED: 04/14/2004

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Sl

## Office Action Summary

Application No.

09/874,044

Applicant(s)

KIRSCH, GRAHAM

Examiner

Tan V Mai

Art Unit

2124

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 6-25-01, 7-25-01, 8-7-01, 2-11-03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 33-35 is/are allowed.
- 6) ☒ Claim(s) 1-32 and 36-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5</u> . | 6) <input type="checkbox"/> Other: _____  |

1. The drawings are objected to because the **number "SHIFT CONTROL REGISTER 308"** should be --SHIFT CONTROL REGISTER 360--, e.g., see specification page 10, line 10 "shift control register ("SCR") 360". A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The disclosure is objected to because of the following informalities:

In the specification, page 2; the status of Co-pending Application(s) Serial No. 09/\_\_\_\_\_ is required to be kept current.

The terms "significand(s)" (in the specification, claims) should be --significant(s)--

Appropriate correction is required.

3. Claims 1-32 and 36-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per independent claims 1 & 7, the phrases "**a plurality of flags coupled to said first register block**" (e.g., claim 1, line 9) are misdescriptive because "FLAGS 307" [in Fig. 3] is coupled to "ALU 301". It is unclear whether the term "said arithmetic logic unit causing the first logic to left shift the **first significand** based upon the states of said plurality of flags" (last two lines of claim 1) refers to the actual "first significand"

Art Unit: 2124

or the result of ALU (i.e., see paragraph [0026], "[t]he result of the arithmetic operation are stored in the Q block 350b". Clarification is requested.

As per dependent claims 36-39, the terms "claim 43", "claim 44", "claim 45" and "claim 46" are mistyped.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 5, 9-11, 17-19, 21 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al '847 (applicant's admission Prior Art).

As per independent claim 1, Brooks et al disclose, e.g., see Fig. 6, the invention substantially as claimed, including: a normalizer circuit (630) for normalizing the result of floating point operation. Brooks et al also disclose the normalization in col. 4, lines 40-49, "[n]ormalization of the present invention requires shifting the most significant binary "1" of the intermediate fraction or mantissa into the carry bit...The selection logic examines the C bit and the L bit and the most significant bit of the intermediate fraction in order to determine whether/how many **left shifts** are required to normalize into the C bit (0-bits, 1-bit, 2-bits,...)". It implies that the normalizer should have "left shift" and control shift "flag(s)" for performing the desired function. It is noted that Brooks et al do NOT disclose the claimed first/second registers features for storing first/second exponents and first/second significants; however, the features are old and well known in

the art. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to design the claimed invention according to Brooks et al's teachings because the reference is a floating point device having normalizing features as claimed.

As per dependent claims 2-3 & 5, Brooks et al do show the claimed features when "I" = 0 (i.e., the most significant bit is ZERO).

As per dependent claim 9-11, the claims add "memory" features. These features are well known in the art for storing intermediate/final result(s).

Due to the similarity of claims 17-19, 21 and 25-27 to claim 1-3, 5 and 9-11, they are rejected under a similar rationale.

6. Claims 1-3, 5, 9-11, 17-19, 21 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al '021

As per independent claim 1, Brooks et al disclose, e.g., see Fig. 5, the invention substantially as claimed, including: a normalizer circuit (50) for normalizing the result of floating point operation. Brooks et al also disclose the normalization in col. 7, line 24 to col. 8, line 45. It is noted that (1) Brooks et al do NOT disclose the claimed first/second registers features for storing first/second exponents and first/second significants; and (2) the claimed "plurality of flags"; however, (1) the first/second registers features are old and well known in the art; and (2) the selection signals (60, 64 & 68) of shift elements (52, 54 & 56) are considered the "plurality of flags". It would have been obvious to a person having ordinary skill in the art at the time the invention was made to design the

claimed invention according to Brooks et al's teachings because the reference is a floating point device having normalizing features as claimed.

As per dependent claims 2-3 & 5, Brooks et al do show the claimed features when "I" = 0 (i.e., the most significant bit is ZERO and FINE SHIFT (56) is active).

As per dependent claim 9-11, the claims add "memory" features. These features are well known in the art for storing intermediate/final result(s).

Due to the similarity of claims 17-19, 21 and 25-27 to claim 1-3, 5 and 9-11, they are rejected under a similar rationale.

7. Claims 1-3, 5, 9-11, 17-19, 21 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makineni.

As per independent claim 1, Makineni discloses, e.g., see Fig. 4, the invention substantially as claimed, including: a four level normalization shifter. Brooks et al also disclose the normalization in col. 4, line 10 to col. 5, line 47. It is noted that Makineni do NOT disclose: (1) the claimed first/second registers features for storing first/second exponents and first/second significants; and (2) the claimed "plurality of flags"; however, (1) the first/second registers features are old and well known in the art; and (2) the outputs of "Leading Bit Anticipator (20) are considered the "plurality of flags". It would have been obvious to a person having ordinary skill in the art at the time the invention was made to design the claimed invention according to Makineni's teachings because the reference is a floating point device having normalizing features as claimed.

As per dependent claims 2-3 & 5, Makineni does show the claimed features when "I" = 0 (i.e., the most significant bit is ZERO and 1-B shifter (36) is active).

As per dependent claim 9-11, the claims add "memory" features. These features are well known in the art for storing intermediate/final result(s).

Due to the similarity of claims 17-19, 21 and 25-27 to claim 1-3, 5 and 9-11, they are rejected under a similar rationale.

8. Claims 4, 6-8, 12-16, 20, 22-24 and 28-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 36-39 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cited references are art of interest.

10. The following is an examiner's statement of reasons for allowance: the recorded references do NOT teach or suggest: (1) the apparatus having the detail "I" flag as recited in dependent claims 4, 6-8, 12-16, 20, 22-24 and 28-32 and (2) the method having a plurality of "I" flags in detail as recited in independent claim 33.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan V. Mai whose telephone number is (703) 305-9761. The examiner can normally be reached on Tue-Fri from 6:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki, can be reached on (703) 305-9662. The fax phone numbers for the organization where this application or proceeding is assigned are:

After-final	(703) 746-7238
Official	(703) 746-7239
Non-Official/Draft	(703) 746-7240.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



TAN V. MAI  
PRIMARY EXAMINER